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| **temperaturethermometer-t12959** | **Physics**  **Heat and temperature** |  |
| **Worksheet-2-** |

1. Preliminary activities
2. Set the following apparatus:

Stand

Thermometer

Beaker + water

Bunsen burner

1. a- As we heat the water observe how does the temperature of water vary.

**As we heat the water the temperature increases.**

b- Describe the motion of water molecules during heating.

**As the temperature increases the water molecules move faster.**

c- Are temperature and heat the same?

**No, they are different: heat is an energy and temperature tells us how the object is hot or cold.**

1. Definitions:
2. Define heat: **heat is a form of energy called often thermal energy and is measured in joules ( or calories).**
3. Define temperature: **temperature is a measure of how hot or cold an object is. The common unit of temperature is the degree Celsius ( oC ).**
4. a- Define thermometer: **it is a device used to measure temperature**.

b- List some example of thermometers: **Bulb thermometers, digital thermometers.**

1. Define calorimeter: **It is a device used to measure the heat.**
2. Factors that the heat of an object depends on.
3. Consider two objects, A and B, made up of the same substance and have different masses (mass of A is greater than mass of B). Heat A and B till reaching the temperature of 40oC.Which object A or B needs more amount of heat?

**The object B needs more heat because it has a greater mass.**

1. Consider two objects, A and B, made up of different substances and have the same masses (mass of A = mass of B). Heat A and B till reaching the temperature of 40oC.Do the object A or B needs the same amount of heat?

**No, they need different amounts of heat.**

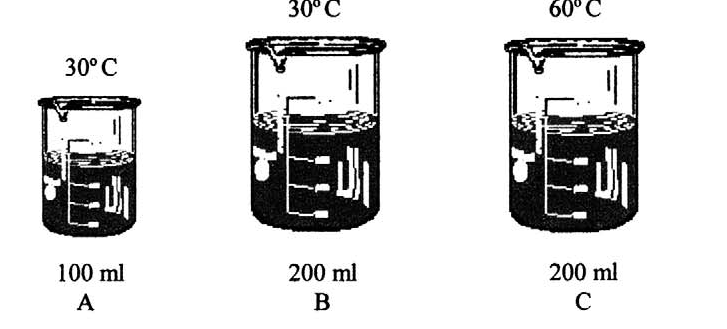
1. Consider two objects, A and B, made up of the same substance, have the same mass (mass of A = mass of B) and the same temperature 20oC. Heat A till reaching the temperature of 40oC and heat B till reaching the temperature of 60oC.Which object A or B needs more amount of heat?

**The object B needs more heat.**

1. Deduce the factors that the amount of heat of an object depends on:
2. **Mass of the object.**
3. **Nature of the substance of the object.**
4. **The object’s difference of temperature**.
5. Answer the following questions:
6. In experiment “Rise in Temperature Relative to Time “ the following data for time versus temperature for the water was obtained:

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| Time  (minutes) | Temperature of water oC |
| 0 (start) | 20 |
| 2 | 40 |
| 4 | 60 |

Which of the following pieces of information about this experiment is **incorrect**?

1. The temperature rise of the water is the same for each interval of 2 minutes.
2. The temperature rise per minute is 10 oC.
3. The water is receiving the same amount of heat energy every minute.
4. **The temperature remains 60oC after 4 minutes.**
5. ****Use the diagram below to answer the questions:

1. In which container is the heat content greatest?

**In container C**

1. In which 2 containers is the motion of molecules is the same?

**Container A and B**.

1. Compare the motion of molecules in container B and C.

**The temperature in container C is greater than in container B so the molecules in container C move faster than in container B**.

1. If you have a cup of water which has a temperature of 50˚ C and you have a swimming pool filled with water at the same temperature, which container has the greatest amount of energy?

**Swimming pool.**